To Install or Not to Install: Why Businesses Choose On-Site Renewable Energy

Michelle Miilu
MA Office of Technical Assistance and Technology
Is On-site Renewable Energy Right for Your Business?
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Background

- Renewable energy lead for office
- Concern about low % of manufacturers applying for state grants
- Driving forces and common ground
- Tool to identify good candidates

Information Sources

- Industry organizations
- State funding organizations
- Businesses with on-site renewables
- Industry currently in the installation process

Types of Businesses

- Food processors
- Plastics
- Pharmaceuticals
- Aluminum extrusion
- Semiconductors
- Inverter manufacturer
- Beauty salon

Main Concerns for Those That Install

COST/BENEFIT

ENVIRONMENTAL

Cost/Benefit

- Paybacks typically 5-10 years
- Certainty about future energy prices
- Large energy users minimize or cut costs while growing business
- Stay competitive

Environmental

- Reliance on fossil fuels
- GHG emissions
- Concern for employees
- Positive affect on regional air quality

Technology-Specific Concerns

- Availability of resource
- Structural/roof issues
- Efficiency of technology

On-site Renewable Energy is Not for Everyone

- Struggling businesses
- Low energy prices
- No energy efficiency effort

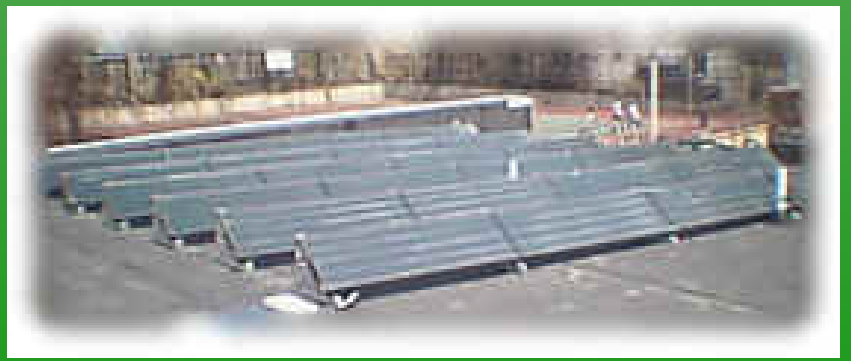
Upper-level commitment is important

How to Choose the Right Renewable

- Availability of resource
- Energy demand of business
- Community acceptance

Good Solar Hot Water Candidates

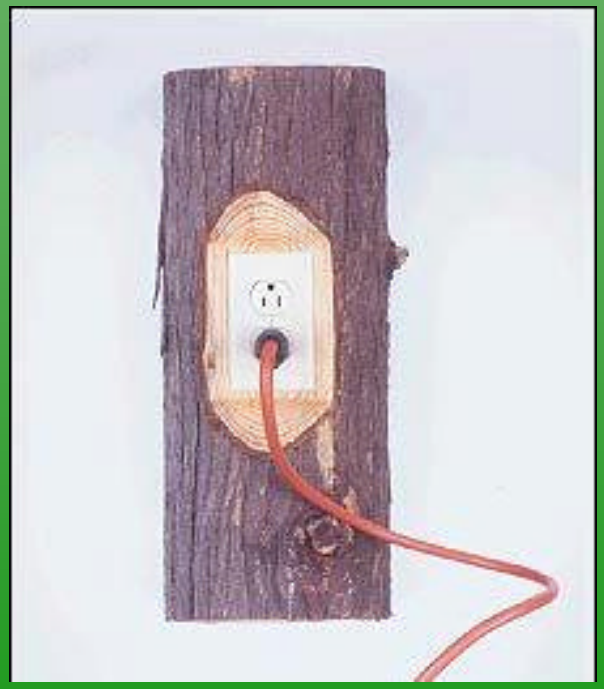
- Have a relatively large demand for hot water
  - Beauty salons
  - Laundries
  - Food processing
  - Plating
  - Textiles
  - Pulp & paper
- Year around direct sun from 9am-4pm
- Space for installation
- Structurally sound location



OTA

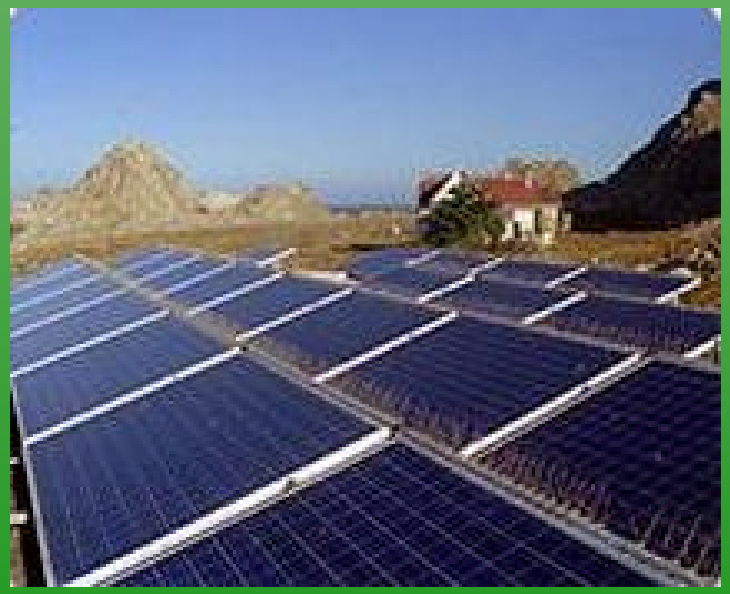
Good Biomass Candidates

- Proximity to resource
- Demand for heat
- Sufficient space



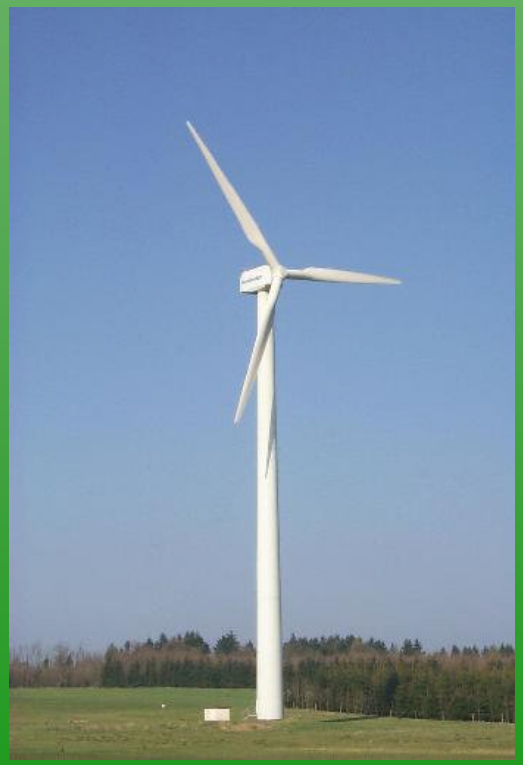
Good PV Candidates

- Preferred installation area: flat or SW-SE facing, **structurally sound**, low-cost, minimal obstructions or shading
- If roof PV, where roof will not require replacement soon
- Where surcharges for peak electricity exist



Good Wind Candidates

- 24/7 operations
- >1000ft from nearest residence
- Class 3 or better wind (6.5m/s at hub height)
- On hill tops
- Away from trees, airports, and sandy soil

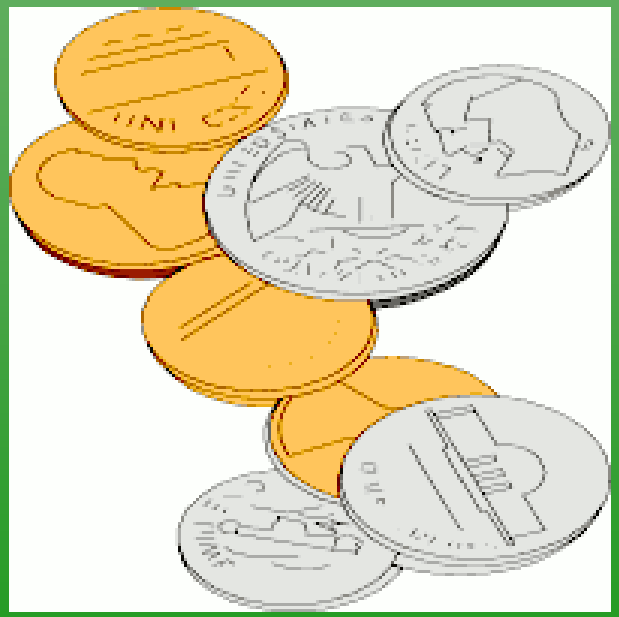


Harbec Plastics - Wind

- Injection molder
- Considered solar, but better wind resource
- Projected 8-9yr payback
- $375K 250kW project, no grants or tax benefits
- Pro: Everyone knows Harbec is environmentally responsible even if they don't know what Harbec does
- Con: Took 13 months to get planning board approval

Things That Renewables Owners Would Change

- Location
- Equipment
  - Type
  - Efficiency
  - Manufacturer
- Sooner!



Other Items That May Concern You

- #1 complaint was that the process took longer than expected
- Except for Fresh Hair, renewables have been completely transparent to production operations
- Everyone said they'd do it again if they had it to do over

Questions??

Fresh Hair - Solar Thermal

- Full service beauty salon
- Considered PV, but too expensive
- Projected 8yr payback
- $9,400 50-60MBtu/yr project, ~3/4 of need
- Tax incentives pay 40%, no grant money
- Pro: Investment in company and environment
- Con: Water out for 1-2 days during installation and a couple hours during annual maintenance

Bixby - PV

- Plastic sheet extruder
- Considered wind, but initial investment too high
- Projected 6-7yr payback
- $345K 51kW project, $257K in tax incentives and state grants
- Pro: A lot of publicity
- Con: Cloudier winter than expected